US EPA RECORDS CENTER REGION 5
549549

FIFTH FIVE-YEAR REVIEW REPORT FOR FADROWSKI DRUM DISPOSAL SUPERFUND SITE MILWAUKEE COUNTY, WISCONSIN

Prepared by

U.S. Environmental Protection Agency
Region 5
Chicago, Illinois

Douglas Ballotti
Acting Director
Superfund Division

Date 7/30/2018

Table of Contents

LIST OF ABBREVIATIONS & ACRONYMS

ACLs	Alternate Concentration Limits
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	Contaminants of Concern
DCA	Dichloroethane
ESC	Environmental Sampling Corporation
EPA	United States Environmental Protection Agency
ES	Enforcement Standard
FDD	Fadrowski Drum Disposal
FR	Federal Register
FS	Feasibility Study
FYR	Five-Year Review
ICs	Institutional Controls
LTS	Long-term Stewardship
MCL	Maximum Contaminant Level
MMSD	Milwaukee Metropolitan Sanitary District
MW	Monitoring Well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAH	Polynuclear Aromatic Hydrocarbon
PALs	Preventive Action Limits
PCE	Perchloroethylene or Tetrachloroethylene
ppb	parts per billion
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
Site	Fadrowski Drum Disposal Superfund Site
TBCs	To Be Considereds
TCA	Trichloroethane
TCE	Trichloroethylene
UAO	Unilateral Administrative Order
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth FYR for the Fadrowski Drum Disposal (FDD) Superfund Site (Site). The triggering action for this statutory review was the completion of the fourth FYR report. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE). The Site consists of one (1) Operable Unit (OU), which will be addressed in this FYR. OU1 addresses the soil and groundwater remedy.

The FDD Superfund Site FYR was led by David Linnear, Remedial Project Manager with EPA, in affiliation with the Wisconsin Department of Natural Resources (WDNR). Participants included Binyoti Amungwafor (WDNR) and Susan Pastor (EPA Community Involvement Coordinator). The relevant entities such as the Potentially Responsible (PRP) were notified of the initiation of the FYR on 1/18/2018. The review began on 1/18/2018.

Site Background

The FDD Site occupies approximately 22 acres of suburban land in the southeast quarter of Franklin, Milwaukee County, Wisconsin. The city of Franklin is located just outside of the Milwaukee city limits. The Site is just off U.S. 41 (also known as South 27th Street) on the east. Rawson Avenue is about 1,400 feet to the south and College Avenue is located approximately 3,400 feet to the north. An unnamed tributary flows southward along the western boundary of the Site and eventually empties into the Root River about three miles southwest. The tributary carries overflow water from Mud Lake in Grobschmidt Park, which is about one-quarter mile north of the Site, and also receives storm water discharge from South 27th Street and other paved areas. The FDD Site abuts and is downgradient of the now-defunct Menards lumber and retail facility located directly to the north of the Site property.

Several municipal wells for the cities of Franklin and Oak Creek are located within three miles of the FDD Site. These wells range from 350 to 1,500 feet deep and are cased to the top of the dolomite bedrock. The closest municipal well is a back-up well for the city of Oak Creek and is located about one-quarter mile north of the Site on South 27th Street. This well also draws from the dolomite aquifer. Drinking water from these wells has not been impacted by Site contaminants.

From 1970 until 1982, the Site was operated as an unlicensed disposal facility that accepted demolition and construction waste. In 1981, WDNR discovered that unlicensed disposal of non-exempt waste had also occurred at the Site. In January 1983, Menards, Inc. purchased the FDD Site property and two

adjacent parcels to construct a lumber and retail facility. During excavation, buried drums containing liquids and sludges were ruptured, releasing hazardous materials.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Fadrowski Drum Disposal Site		
EPA ID: WID980901227		
Region: 5	**State:** WI	**City/County:** Franklin, Milwaukee County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name (Federal or State Project Manager): David Linnear		
Author affiliation: EPA		
Review period: 1/18/2018 - 5/17/2018		
Date of site inspection: 4/17/2018		
Type of review: Statutory		
Review number: 5		
Triggering action date: 5/20/2013		
Due date *(five years after triggering action date)*: 5/18/2018 (Due date in SEMS was 7/31/2018)		

II. RESPONSE ACTION SUMMARY

The FDD Site was in the monitoring phase from 1995 through 2013. Site-related contaminants have declined in the groundwater and cleanup goals for environmental media have been met for all contaminants of concern (COCs), although there are some exceedances of the state standards for naturally occurring substances in groundwater. Monitoring was ended although other regular operation and maintenance (O&M) activities are on-going.

Basis for Taking Action

The Remedial Investigation (RI) / Feasibility Study (FS) between April 1987 and May 1991, fully characterized the chemical wastes at the Site, defined contaminant sources, determined the vertical and

horizontal extent of contamination, identified contaminant migration pathways and movement, and assessed public health and environmental risk. The RI results are summarized below.

Groundwater

Groundwater monitoring was first conducted during the RI after the potential for groundwater contamination was realized. The groundwater investigation involved the installation and monitoring of five water table wells and three piezometers in nested arrangements at the four corners of the landfill. A private well was also included in the network.

The RI determined that groundwater flows in a different direction within each of the three geologic units. In the uppermost clay till aquifer groundwater flows in a north to northwesterly direction; in the middle sand and gravel aquifer, the groundwater flows eastward toward Lake Michigan; and, in the deeper dolomite bedrock aquifer, the flow component is south to southwest. These units are hydraulically connected.

The RI results confirmed that the groundwater in the clay till had been impacted by cyanide, chromium and barium in excess of the Wisconsin Preventive Action Limits (PALs)[1], and mercury was found in excess of the Wisconsin Enforcement Standard (ES)[2]. There are several private wells located within 2,000 feet of the Site and several municipal backup wells for the cities of Franklin and Oak Creek sited within three miles of the Site; however, testing showed that drinking water from these groundwater sources has not been impacted by the Site. Lake Michigan is the municipal water supply source for Oak Creek and Franklin (Franklin purchases its water from Oak Creek). Benzene, mercury, and cyanide were the major groundwater COCs to human health at the FDD Site.

Surface Water

Surface water was contained on-site in a manmade pond approximately 360 feet long by 120 feet wide. The pond, which was created during the excavation of borrow fill material for the construction of the Menards facility, was located in the western central portion of the Site. The pond intercepted most surface water runoff over the Site and was also a point of groundwater discharge. The pond water contained elevated cyanide levels. The water in the unnamed tributary along the western Site boundary contained low levels of volatile organic compounds (VOCs). The COCs that were evaluated with respect to potential human health risk included aluminum, arsenic, potassium, and cyanide.

Sediments

The sediments sampled in the on-site pond contained site-related contaminants. Sediments collected downstream of the site in the unnamed tributary showed higher concentrations of certain polynuclear aromatic hydrocarbons (PAHs) than did the samples collected upstream of the site. Similarly, inorganics, including aluminum, barium, beryllium, calcium, lead, and magnesium, showed higher

---

[1] Preventive Action Limits (PALs) are contaminant-specific limits which signify a potential groundwater contamination problem. When PALs are exceeded for any constituent measured at a groundwater monitoring point, WDNR must take action to manage or control the contamination so that the ES is not attained.

[2] Enforcement Standards (ES) are adopted under Wisconsin Administrative Code Section NR 140 as groundwater quality standards that WDNR consistently applies to all facilities, practices and activities that may affect groundwater quality.

concentrations in the downstream samples compared to the upstream samples, indicating that the tributary sediments may have been impacted by the site. The COCs that were evaluated with respect to human health risk included the VOCs toluene and acetone, and the semi-volatile organic compounds fluoranthene, pyrene, and butylbenzylphthalate.

Soil

Surface soils from the western slope of the fill pile showed PAH concentrations as high as 10,290 parts per billion (ppb). This finding indicated that runoff or seeps from the fill pile were affecting surface soil adjacent to and west of the fill pile. Subsurface soils collected from the site were contaminated with organic compounds, namely toluene, at levels as high as 1,800 ppb. Total PAHs were also frequently detected in the subsurface soil at levels as high as 24,300 ppb. The subsurface soil borings revealed dichlorodiphenyltrichloroethane at its highest concentration of 310 ppb and the polychlorinated biphenyl Arochlor 1254 at a maximum concentration of 1,900 ppb. Cyanide was found in one boring at 6,360 ppb and numerous inorganic compounds such as lead, mercury, nickel, cadmium, and zinc were also detected. The COCs in the soil that were evaluated with respect to human health risk included PAHs and phthalates, dibenzofuran, and VOCs such as benzene, xylenes, trichloroethylene (TCE), tetrachloroethylene (PCE), trichloroethane (TCA) and dichloroethane (DCA).

Response Actions

WDNR prepared a Potential Hazardous Waste Site Preliminary Assessment in January 1984 that concluded that the containerized waste and sludge at the FDD Site were a potential source of contamination to surface water and groundwater. EPA proposed the FDD Site for listing on the National Priorities List (NPL) on October 15, 1984 and placed it on the NPL on June 6, 1986.

An Administrative Order on Consent (AOC) was then signed on May 11, 1987 by the PRPs, EPA, and WDNR, under which the PRPs agreed to conduct a RI and FS at the Site.

EPA issued a Record of Decision (ROD) on June 10, 1991, which selected a cleanup remedy that included the removal of drummed waste, on-site consolidation of other wastes, closure of an on-site pond, landfilling and capping the consolidated waste, installing a groundwater monitoring network, and recording deed restrictions (institutional controls (ICs)).

Status of Implementation

EPA issued a ROD in 1991. On September 30, 1991, EPA and Menards entered into an AOC under which Menards agreed to perform the Remedial Design (RD). EPA and WDNR (the "agencies") subsequently signed a Cooperative Agreement to support state oversight of the RD and Remedial Action (RA).

After the RD was completed, EPA issued a Unilateral Administrative Order (UAO) to the PRPs on April 21, 1993, requiring them to perform the RA. The RA started on September 7, 1993 and achieved completion of construction on August 28, 1995. All construction activities and the final O&M Plan were completed in fall 1995.

Institutional Controls

Table 1: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	Area of soil covered to prevent direct contact with waste and infiltration of water to the waste.	To prevent direct contact with residual hazardous waste and infiltration of water through the waste by prohibiting the residential use of the property.	Declaration of Restriction on Use of Real Property No. 6778270, recorded on June 14, 1993 prohibits the installation of any structure on the landfill cap area. This restriction originally covered 22 acres; however, as per the EPA modification to the Declaration of Restrictions on July 24, 2001, the restriction currently applies to 11.4 acres.
Groundwater	Yes	Yes	Groundwater underlying the Site property.	To prohibit groundwater use for potable water	Declaration of Restriction on Use of Real Property No. 6778270, recorded on June 14, 1993 applies to and covers 11.4 acres.
Soil	Yes	Yes	Area of the Site property.	To prohibit activities and uses which may interfere with work performed.	Declaration of Restriction on Use of Real Property No. 6778270, recorded on June 14, 1993 applies to 0.4 acres.

A map showing the area in which the ICs apply is included in Appendix B and depicts the current conditions of the Site and areas which do not allow for UU/UE.

Status of Access Restrictions and ICs: ICs are in place for the site. They are functioning to help ensure protectiveness of human health and the environment. EPA is working with the PRPs to address long-term stewardship (LTS) by amending the O&M Plan to incorporate procedures for LTS of ICs. Long-term protectiveness at the Site requires compliance with remedy and use restrictions to assure the remedy continues to function as intended.

Current Compliance: Based on the site inspections, and discussions with the PRPs' contractor and WDNR, the ICs and required use restrictions are being complied with. EPA is not aware of Site or media uses, such as groundwater or surface water, which are inconsistent or inappropriate with the stated objectives to be achieved by the ICs. The remedy appears to be functioning as intended. No Site

uses which are inconsistent with the implemented ICs or remedy IC objectives, were noted during the Site inspection.

The 2008 Site-wide Ready for Anticipated Use (SWRAU) concluded that all cleanup goals in the ROD have been achieved for any media that may affect current and reasonably anticipated future land uses, so that there are no unacceptable risks, and that all ICs required by the ROD are in place and effective.

IC Follow up Actions Needed: EPA is working with the PRPs to amend the O&M Plan incorporating LTS procedures. This was recommended in the previous FYR and is carried forward as a recommendation in this FYR.

Long Term Stewardship:
Long-term protectiveness requires continued compliance with the ICs consisting of land use and groundwater use restrictions to ensure that the remedy continues to function as intended. LTS will ensure that the ICs are maintained, monitored and enforced. A LTS Plan, or O&M Plan revision, should be developed to document LTS procedures. LTS procedures should describe at a minimum: (1) monitoring activities and schedules; (2) responsibilities for performing each task; (3) reporting requirements; and (4) a process for addressing any potential IC issues that may arise during the reporting period. The LTS Plan or O&M Plan revision should include the LTS components as outlined in the ICIAP guidance [1].

EPA is working with the PRPs to amend the O&M Plan incorporating LTS procedures. This was recommended in the previous FYR and is carried forward with this FYR. It will include procedures to ensure long-term IC stewardship including regular inspections of the engineering controls and access controls at the Site, reviews of the ICs, and annual ICs reports with results of the inspection and review and certification to EPA that ICs remain in-place and are effective. The LTS procedures will ensure the that the remedy continues to function as intended.

Systems Operations/Operation & Maintenance

The Site has been in the O&M phase since August 28, 1995 when the Preliminary Close-out Report was completed. The O&M responsibilities listed in Table 2 are being performed by Menards' subcontractor Environmental Sampling Corporation (ESC) of Muskego, Wisconsin. All O&M and other requirements previously under EPA's 1993 UAO, which was terminated in October 2006, are now enforced under the state's March 28, 2005 AOC with Menards. WDNR manages the FDD site as a closed landfill under its Solid Waste Program WAC Chapter NR 514.05.9. Monthly Field Status Reports, including the compliance and discharge reporting for the Milwaukee Metropolitan Sanitary District (MMSD) are filed by ESC. ESC prepares a semi-annual inspection report which is filed at both the ESC office in Muskego and at the Ayres office in Eau Claire, Wisconsin.

3

[3] *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77:
https://www.epa.gov/sites/production/files/documents/iciap_guidance_final_-_12.04.2012.pdf

Table 2: O&M Activities

ACTIVITY	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY
Site Fencing	Semi-annually	As Required
Site Access Road	Semi-annually	As Required
ENVIRONMENTAL MONITORING PROGRAM		
Sample Collection	(a)	Not Applicable
Monitoring Well Inspection	As Required	As Required
FINAL COVER SYSTEM		
Erosion of Soil Cap	Semi-annually	As Required
Vegetation Cover	Semi-annually	As Required
Erosion Control Structures	Semi-annually	As Required
Storm water Structures	Semi-annually	As Required
Mowing and Pruning	Semi-annually	Semi-Annually (b)
LEACHATE COLLECTION SYSTEM		
Full Tank Monitoring	Annually	(c)
Leachate Level Measure	Monthly	(c)
Leachate Disposal	Monthly	As Required
Test Cycle Pump	monthly	As Required
Jet Leachate Collection Line	Five-Year Interval	As Required
Tank Leak Detection Alarm	Monthly	As Required
Cathodic Protection	Monthly	As Required

(a) Environmental monitoring ended after 2013 as Site-related COCs have been met.
(b) Mowing of vegetation occurs twice per year during the growing season; usually in early July and late Sept.
(c) None required as direct discharge permit to MMSD sewer has been established.

Annual O&M reports are provided to the agencies to document work conducted, as well as any problems, corrective actions taken, and changes to reporting requirements. Notable O&M activities performed at the Site since the 2013 FYR are discussed below.

The landfill cap, site fencing, signs and leachate collection system have been well-maintained. Grass on the landfill cap is healthy and is maintained at about six to ten inches throughout the year. The gravel access road is typically overgrown with weeds and grass, but this does not pose an access problem.

MMSD has a key to the Site in order to check the manhole and leachate tank, and to collect grab samples on a monthly basis. Wisconsin Electric Company visits the Site quarterly to check the meter.

Over the past five years, from 2013 through 2018, the annual O&M costs were similar to the previous five-year period (2008-2013). On average, annual O&M costs are estimated at $20,000 and can vary depending on the required analyses or repair work.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determination and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 3: Protectiveness Determinations/Statements from the 2013 FYR

OU	Protectiveness Determination	Protectiveness Statement
OU1/Site-wide	Protective	EPA has determined that the remedial action at the FDD site is protective of human health and the environment. All data and observations collected and evaluated during this FYR indicate that the remedy is functioning as intended by the ROD and it is projected to continue in this manner. The FDD site neither poses a threat to human health or the environment, nor is it projected to do so in the future. Operation and maintenance activities have been effective. Groundwater and leachate monitoring will continue until EPA and WDNR determine that it is no longer necessary. Since compliance with effective ICs is necessary to assure the protectiveness of the remedy, effective ICs must be in-place and LTS is required. Long-term stewardship involves assuring that effective ICs are in place, as well as the procedures to properly maintain, monitor, and enforce them so that the remedy continues to remain protective of human health and the environment. To that end, although ICs have been implemented in the form of deed restrictions, an updated Restrictive Covenant is being pursued to better assure that the remedy will continue to provide long-term protection and additional evaluation activities will occur to ensure that no other encumbrances will interfere with the ICs.

There were no issues and recommendations identified which affected the protectiveness of the remedy during the 2013 FYR. The 2013 FYR did identify two follow-up actions that warrant further attention, and which do not affect the protectiveness of the remedy:

- Update the O&M Plan to include LTS procedures. The O&M Plan has not been updated to include procedures for maintaining and monitoring the ICs and to include a provision to provide WDNR and EPA with an annual certification that ICs are in place and effective. This recommendation has been carried forward in this FYR.

- Enhance LTS of the ICs by completing and recording a Restrictive Covenant. Upon further review, EPA determined that a Restrictive Covenant is not needed as the ICs currently in place are effective.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A notice appeared in the Milwaukee Journal Sentinel, Milwaukee, Wisconsin, on February 21, 2018 informing the community that a review was to take place, listing the major components of the remedy, and informing them where additional documents could be found. The public was invited to submit any comments concerning the Site to EPA. The results of the review and the report will be made available at the Site information repository. The information repository for the Site is located at the Franklin Public Library 9151 W. Loomis Rd. Franklin, Wisconsin 53132. Copies of the FYR reports can also be obtained at http://www.epa.gov/superfund/fadrowskidrumdisposal. During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. Results of these interviews indicated that no significant changes have occurred since the last FYR.

Data Review

The FDD Site was in the environmental monitoring phase from 1995 through 2013. Site-related contaminants have declined in the groundwater and cleanup goals for environmental media have been met for all COCs, although there are some exceedances of the state standards for naturally occurring substances in groundwater. Monitoring was ended although other regular O&M activities are on-going. As a result, no monitoring data was collected during the period of this FYR and there is no current data to review.

Site Inspection

The inspection of the Site was conducted on 4/17/2018. In attendance were David Linnear (EPA), Binyoti Amungwafor (WDNR), and Frank Perugini (ESC) and Bill Honea representing Lori Rosemore (Ayres Association). The purpose of the inspection was to assess the protectiveness of the remedy.

The inspection revealed no significant changes since the last FYR. The remedy is a landfill cap with groundwater monitoring. A leachate collection system and surface water drainage system collects water and the water is pumped to MMSD Sanitary Sewer lines. Natural attenuation of groundwater had been monitored via nested monitoring wells at the 4 corners of the landfill. ICs, site access controls, and signs are in place. Gates are secure. The remedy is functioning effectively, is protective, and RAOs are being met. O&M activities occur as needed and/or semi-annually.

The purpose of the inspection was to gather data to use in the assessment of the protectiveness of the remedy, including the condition of the fencing and posted signs to restrict access, and the condition of the site itself, i.e., the landfill cover, leachate collection system, monitoring wells, the surrounding land, and ICs. The representatives walked the site perimeter, noting the condition of the landfill cap, monitoring wells, leachate collection system, fence, signs, and gates.

The landfill cover, leachate collection area, and 50-degree slope constituting a natural drainage area appeared to be well-maintained. There were no signs which would indicate that ponding had occurred. The team noted two areas that had been damaged and/or eroded. The site is capable of supporting numerous animal, bird, and insect species.

The team opened and checked the monitoring wells, which were found to be in good condition with no signs of vandalism or tampering evident. There were no physical signs of methane gas present, which might be indicated by the blackening of brass fixtures on the well heads. The leachate collection system lift station, high water alarm system, drains and electrical panels were in good condition and operating. The team noted that locks had been placed on the leachate system electrical panel as was suggested during the previous FYR inspection.

Interviews

The ESC staff is regularly at the Site and indicated that no problems have occurred regarding site security and no concerns have been raised by the local commercial and residential population. Further, no telephone calls have been received regarding the prospective purchase of the property. Regarding concerns about the use of private wells in the area, the maps of the water supply infrastructure indicate that the Franklin municipal water supply is available and utilized by the large commercial establishments and residential developments in the vicinity of the site.

Since the last FYR, Franklin has extended its water lines to areas not previously served by city water, which included south of Rawson Avenue, such as along Minnesota Avenue and on the west side of 31st street, and within the first half mile north of Drexel. There are existing water utilities along the South 27th Street Corridor. The water and sewer lines along South 27th Street extend south up to Ryan Road, leaving a section of the corridor between South County Line Road and Ryan Road not well-served by utilities at this time; however, contaminant levels do not exceed any regulatory or health-based criteria that would present a risk to potential groundwater receptors.

The Franklin City Hall, 9229 W. Loomis Road, has also served as a site document repository; however, most people are referred to the Franklin Public Library, 9151W Loomis Road to review the FDD site Administrative Record library for site documents.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

Question A: Is the remedy functioning as intended by the decision documents?

Yes. The review of the available information indicates the remedy is generally functioning as it was intended. The remedy included soil excavation, groundwater monitoring, installing site access controls, and establishing ICs. No further remedial or removal actions are necessary.

Based on a review of relevant documents, applicable or relevant and appropriate requirements (ARARs), risk assumptions, and the results of the FYR site inspection, the remedy is functioning as intended by the ROD and attendant documents, and it is projected to continue in this manner. The effectiveness and progress of the remedy has been tracked through the monitoring program which encompasses data from 23 monitoring events. The FDD Site was in the monitoring phase from 1995 through 2013. Site-related contaminants have declined in the groundwater and cleanup goals for environmental media have been met for all COCs, although there are some exceedances of the state standards for naturally occurring substances in groundwater. Monitoring was ended although other regular O&M activities are on-going. As a result, no monitoring data was collected during the period of this FYR.

As stated above, all of the compounds monitored at the FDD Site have either met the cleanup criteria, i.e., the PALs set forth in the 1988 WAC Chapter NR 140 Ground Water Quality Standards, or correspond to concentrations that are measured in background samples, thus reflecting the naturally occurring levels of these constituents. Wisconsin Alternative Concentration Limits have been set and met for these naturally occurring constituents. These data indicate that the Site neither poses a threat to human health or the environment, nor is it expected to do so in the future, because although PALs have been exceeded in the past, the ESs, which are set to protect public health and the environment, have not been exceeded.

WDNR manages the site as a closed landfill under its Solid Waste Program WAC Chapter NR 514.05.9 as per its 2005 AOC with Menards. This involves oversight of O&M. There has been no evidence of vandalism or trespassing activity at the Site since the last FYR.

ICs are in place and are effective at preventing exposure and no additional remediation is needed. Discussions with Site O&M personnel indicate that no issues or problems have arisen with respect to enforcing the deed restrictions for the property. Upon review, EPA determined that a Restrictive Covenant (recommended in the 2013 FYR) is not needed as the ICs currently in place are effective. EPA is working with the PRPs to amend the O&M Plan incorporating LTS procedures. This was recommended in the 2013 FYR and is carried forward as a recommendation in this FYR.

There may be an opportunity for remedy optimization. With the ending of the groundwater monitoring program, the need to continue to maintain monitoring wells should be evaluated. If the monitoring wells are no longer needed, they should be considered for abandonment. This has been added to Other Findings. There are no early indicators of potential issues.

<u>Question B:</u> Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes. There have been no major changes in the physical conditions of the site that would affect the protectiveness of the remedy. The site is being used as anticipated, i.e., it is not being used, so the exposure assumptions that were made do not need to be changed.

There has been no change to the standardized risk assessment methodology or contaminant characteristics that would affect the protectiveness of the remedy. There have been no changes in toxicity factors or cleanup levels. As per the ICs, the property is currently zoned for industrial use; however, there is currently no formal use of the property. No unacceptable risks would be sustained.

Question C: Has any other information become available that could call into question the protectiveness of the remedy?

No. There is no new information that has come to light that could affect the protectiveness of the remedy. No other events have affected the protectiveness of the remedy and there is no other information which calls into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

OU(s): 1/Sitewide	Issue Category: Institutional Controls			
	Issue: LTS procedures are needed to ensure that effective ICs are monitored, maintained and enforced.			
	Recommendation: Develop a LTS Plan or modify the O&M Plan to include procedures for monitoring and tracking compliance with existing ICs, communicating with EPA/WDNR, and providing an annual certification to EPA/WDNR that the ICs remain in place and are effective.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	9/30/2019

OTHER FINDINGS

The following is a recommendation that was identified during the FYR and may improve performance of the remedy, but does not affect current nor future protectiveness: with the ending of groundwater monitoring, the need to maintain monitoring wells should be evaluated. If the monitoring wells are no longer needed, they should be considered for abandonment.

VII. PROTECTIVENESS STATEMENT

OU1 & Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: The remedy at the Fadrowski Drum Disposal Site is currently protective of human health and the environment because the remedy is functioning as anticipated and effective ICs have been implemented. All immediate threats have been addressed; there is no evidence of exposure to Site-related contaminants; and the existing Site and groundwater uses are consistent with the objectives in the remedy and ICs. However, in order for the remedy to be protective in the long-term, the following action needs to be taken to ensure protectiveness: develop a LTS Plan or modify the O&M Plan to include procedures for monitoring and tracking compliance with

existing ICs, communicating with EPA/WDNR, and providing an annual certification to EPA/WDNR that the ICs remain in place and are effective.

VIII. NEXT REVIEW

The next FYR report for the Fadrowski Drum Disposal Superfund Site is required no less than five years from EPA's signature date of this review.

APPENDIX A – REFERENCE LIST

Previous FYR

4th FYR, dated May 20, 2013

O&M Report

O&M Report, dated October 26, 2017

Annual Report

Annual Report, dated October 26, 2017

Decision Document(s)

ROD, dated June 1991
UAO, dated April 1993
Closeout Report, dated August 1995

APPENDIX B

Site Inspection Photos
Site Inspection Checklist
IC Map

FIG 1

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Fadrowski Drum Disposal	**Date of inspection: April 17, 2018**
Location and Region: Franklin (Milwaukee), WI – Region 5	**EPA ID: WID980901227**
Agency, office, or company leading the five-year review: US EPA	**Weather/temperature: Clear, 34 degrees.**
Remedy Includes: (Check all that apply) x Landfill cover/containment x Access controls x Institutional controls ☐ Groundwater pump and treatment x Surface water collection and treatment ☐ Other – leachate collection and extraction well systems x Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls	
Attachments: ☐ Inspection team roster attached ☐ Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** Lori Rosemore (Name) Project Manager (Title) April 17, 2018 (Date) Interviewed ☐ at site ☐ at office x by phone Phone no. 715 834 3161 Problems, suggestions; ☐ Report attached: No problems to report	
2. **O&M staff** Frank Perugini (Name) Dir. of Operations (Title) April 17, 2018 (Date) Interviewed x at site ☐ at office ☐ by phone Phone no. 414 427 5033 Problems, suggestions; ☐ Report attached: No problems to report	
Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply. Agency – Wisconsin DNR Contact Binyoti Amungwafor (Name) Project Manager (Title) April 17, 2018 (Date) 4142638607 (Phone no.) Problems; suggestions; ☐ Report attached: None to report	
4. **Other interviews** (optional) ☐ Report attached. Fadrowski Drum Disposal – Project Managers	
Bill Honea – Ayes – No issues to report	
Frank Perugini – ESC – No issues to report	
III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)	

1.	**O&M Documents (2015)**			
	x O&M manual	x Readily available	x Up to date	☐ N/A
	x As-built drawings	x Readily available	x Up to date	☐ N/A
	x Maintenance logs	x Readily available	x Up to date	☐ N/A
	Remarks: Logs are kept at ESC office in Muskego, WI; Semi-annual reports are kept at Ayes office in Eau Claire, WI and WDNR offices in Milwaukee.			
2.	**Site-Specific Health and Safety Plan**	x Readily available	x Up to date	☐ N/A
	x Contingency plan/emergency response plan	x Readily available	x Up to date	☐ N/A
	Remarks: Available electronically and supplied per O & M Plan			
3.	**O&M and OSHA Training Records**	x Readily available	x Up to date	☐ N/A
	Remarks: Kept at ESC office in Muskego, WI. Available electronically and supplied per O & M Plan			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	x N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	x N/A
	x Waste disposal, POTW	x Readily available	x Up to date	☐ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	x N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	x N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	x N/A
	Remarks			
7.	**Groundwater Monitoring Records**	x Readily available	x Up to date	☐ N/A
	Remarks: Available electronically and supplied per O & M Plan			
8.	**Leachate Extraction Records**	x Readily available	x Up to date	☐ N/A
	Remarks: Available electronically and supplied per O & M Plan			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	x N/A
	x Water (effluent)	x Readily available	x Up to date	☐ N/A
	Remarks: Available electronically and supplied per O & M Plan			
10.	**Daily Access/Security Logs**	x Readily available	x Up to date	☐ N/A
	Remarks: Security logs are included as part of O&M periodic reporting monthly. Available electronically and supplied per O & M Plan			

IV. O&M COSTS

1.	**O&M Organization**	
	☐ State in-house	☐ Contractor for State
	☐ PRP in-house	x Contractor for PRP
	☐ Federal Facility in-house	☐ Contractor for Federal Facility
	☐ Other_____	

2. **O&M Cost Records**
x Readily available x Up to date
x Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From 1/1/2013 Date	To 12/31/2013 Date	$20,174.80 Total cost	☐ Breakdown attached
From 1/1/2014 Date	To 12/31/2014 Date	$19,598.60 Total cost	☐ Breakdown attached
From 1/1/2015 Date	To 12/31/2015 Date	$11,249.88 Total cost	☐ Breakdown attached
From 1/1/2016 Date	To 12/31/2016 Date	$20,871.29 Total cost	☐ Breakdown attached
From 1/1/2017 Date	To 12/31/2017 Date	$20,534.29 Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS x Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** x Location shown on site map x Gates secured ☐ N/A
Remarks: There were no issues to report.

B. Other Access Restrictions

1. **Signs and other security measures** x Location shown on site map ☐ N/A
Remarks: There were no issues to report.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes x No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes x No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): Semi-annual and O&M
Frequency: Semi-annually inspections
Responsible party/agency – Menards Inc. / WDNR oversight
Contact Paul Mabler (Name) Corporate Counsel (Title) April 17, 2018 (Date) 715 876 2492 (Phone no.)

Reporting is up-to-date x Yes ☐ No ☐ N/A
Reports are verified by the lead agency x Yes ☐ No ☐ N/A
Specific requirements in deed or decision documents have been met x Yes ☐ No ☐ N/A
Violations have been reported x Yes ☐ No ☐ N/A
Other problems or suggestions: x Report attached

2. **Adequacy** x ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks: The City of Franklin, Menards, and WDNR have not indicated any IC issues.

D. General			
1.	**Vandalism/trespassing**	☐ Location shown on site map	x No vandalism evident
2.	**Land use changes on site** x N/A		
3.	**Land use changes off site** x N/A		
VI. GENERAL SITE CONDITIONS			
A. Roads	x Applicable	☐ N/A	
1.	**Roads damaged**	x Location shown on site map	x Roads adequate ☐ N/A
B. Other Site Conditions			
	Remarks: None		
VII. LANDFILL COVERS x Applicable ☐ N/A			
A. Landfill Surface			
1.	**Settlement** (Low spots) Areal extent_____ Remarks: Minor evidence which does not impact function and/or effectiveness	x Location shown on site map Depth_____	x Settlement not evident
2.	**Cracks**	☐ Location shown on site map	x Cracking not evident
3.	**Erosion**	☐ Location shown on site map	x Erosion not evident
4.	**Holes**	☐ Location shown on site map	x Holes not evident
5.	**Vegetative Cover** x Grass x Trees/Shrubs (indicate size and locations on a diagram)	x Cover properly established	x No signs of stress
6.	**Alternative Cover (armored rock, concrete, etc.)** x N/A		
7.	**Bulges**	☐ Location shown on site map	x Bulges not evident
8.	**Wet Areas/Water Damage**	x Wet areas/water damage not evident	
9.	**Slope Instability** ☐ Slides	☐ Location shown on site map	x No evidence of slope instability
B. Benches ☐ Applicable x N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	**Flows Bypass Bench**	☐ Location shown on site map	x N/A or okay
2.	**Bench Breached**	☐ Location shown on site map	x N/A or okay
3.	**Bench Overtopped**	☐ Location shown on site map	x N/A or okay
C. Letdown Channels x Applicable ☐ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	**Settlement**	☐ Location shown on site map	x No evidence of settlement
2.	**Material Degradation**	☐ Location shown on site map	x No evidence of degradation
3.	**Erosion**	☐ Location shown on site map	x No evidence of erosion

4.	**Undercutting**	☐ Location shown on site map		x No evidence of undercutting
5.	**Obstructions**	Type _____		x No obstructions
6.	**Excessive Vegetative Growth**	Type _____		
	x No evidence of excessive growth			
	x Vegetation in channels does not obstruct flow			
D. Cover Penetrations	x Applicable	☐ N/A		
1.	**Gas Vents**	☐ Active	☐ Passive	
	☐ Properly secured/locked	x Functioning	☐ Routinely sampled	☐ Good condition
	☐ Evidence of leakage at penetration		☐ Needs Maintenance	x N/A
2.	**Gas Monitoring Probes**			
	☐ Properly secured/locked	☐ Functioning	☐ Routinely sampled	☐ Good condition
	☐ Evidence of leakage at penetration		☐ Needs Maintenance	x N/A
3.	**Monitoring Wells** (within surface area of landfill)			
	x Properly secured/locked	x Functioning	x Routinely sampled	x Good condition
	☐ Evidence of leakage at penetration		☐ Needs Maintenance	☐ N/A
4.	**Leachate Extraction Wells**			
	x Properly secured/locked	x Functioning	x Routinely sampled	☐ Good condition
	☐ Evidence of leakage at penetration		☐ Needs Maintenance	☐ N/A
5.	**Settlement Monuments**	☐ Located	☐ Routinely surveyed	x N/A

E. Gas Collection and Treatment	☐ Applicable	x N/A		
1.	**Gas Treatment Facilities**			
	☐ Flaring	☐ Thermal destruction	☐ Collection for reuse	
	☐ Good condition	☐ Needs Maintenance		
2.	**Gas Collection Wells, Manifolds and Piping**			
	☐ Good condition	☐ Needs Maintenance		
3.	**Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)			
	☐ Good condition	☐ Needs Maintenance	☐ N/A	
F. Cover Drainage Layer	x Applicable	☐ N/A		
1.	**Outlet Pipes Inspected**	☐ Functioning	☐ N/A	
2.	**Outlet Rock Inspected**	x Functioning	☐ N/A	
G. Detention/Sedimentation Ponds	☐ Applicable	x N/A		
1.	**Siltation** Areal extent _____	Depth _____	☐ N/A	
	☐ Siltation not evident			
2.	**Erosion**	Areal extent _____	Depth _____	
	☐ Erosion not evident			
3.	**Outlet Works**	☐ Functioning	☐ N/A	
4.	**Dam**	☐ Functioning	☐ N/A	

H. Retaining Walls		☐ Applicable	x N/A
1.	**Deformations**	☐ Location shown on site map	☐ Deformation not evident
	Horizontal displacement_____	Vertical displacement_____	
	Rotational displacement_____		
2.	**Degradation**	☐ Location shown on site map	☐ Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		x Applicable	☐ N/A
1.	**Siltation**	☐ Location shown on site map	x Siltation not evident
	Areal extent_____	Depth_____	
2.	**Vegetative Growth**	☐ Location shown on site map	☐ N/A
	x Vegetation does not impede flow		
	Areal extent_____	Type_____	
3.	**Erosion**	☐ Location shown on site map	x Erosion not evident
	Areal extent_____	Depth_____	
4.	**Discharge Structure**	☐ Functioning	x N/A
VIII. VERTICAL BARRIER WALLS		☐ Applicable	x N/A
1.	**Settlement**	☐ Location shown on site map	☐ Settlement not evident
	Areal extent_____	Depth_____	
2.	**Performance Monitoring** Type of monitoring_____		
	☐ Performance not monitored		
	Frequency_____	☐ Evidence of breaching	
	Head differential_____		

IX. GROUNDWATER/SURFACE WATER REMEDIES			x Applicable	☐ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines			☐ Applicable	x N/A
1.	**Pumps, Wellhead Plumbing, and Electrical**			
	☐ Good condition	☐ All required wells properly operating	☐ Needs Maintenance	x N/A
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**			
	☐ Good condition	☐ Needs Maintenance		
3.	**Spare Parts and Equipment**			
	☐ Readily available	☐ Good condition	☐ Requires upgrade	☐ Needs to be provided
B. Surface Water Collection Structures, Pumps, and Pipelines			☐ Applicable	x N/A
1.	**Collection Structures, Pumps, and Electrical**			
	x Good condition	☐ Needs Maintenance		
	This is a passive (drainage grate) collection system. French Drain			
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**			
	x Good condition	☐ Needs Maintenance		
3.	**Spare Parts and Equipment**			
	x Readily available	☐ Good condition	☐ Requires upgrade	☐ Needs to be provided

C. Treatment System	☐ Applicable x N/A
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☐ Carbon adsorbers ☐ Filters_____ ☐ Additive (*e.g.*, chelation agent, flocculent)_____ ☐ Others_____ ☐ Good condition ☐ Needs Maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified ☐ Quantity of groundwater treated annually_____ ☐ Quantity of surface water treated annually_____
2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☐ Good condition☐ Needs Maintenance
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A ☐ Good condition☐ Proper secondary containment ☐ Needs Maintenance
4.	**Discharge Structure and Appurtenances** ☐ N/A ☐ Good condition☐ Needs Maintenance
5.	**Treatment Building(s)** ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored
6.	**Monitoring Wells** (monitored natural attenuation remedy) ☐ Properly secured/locked ☐ Functioning x Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A
D. Monitoring Data	
1.	Monitoring Data x Is routinely submitted on time x Is of acceptable quality
2.	Monitoring data suggests: x Groundwater plume is effectively contained x Contaminant concentrations are declining

D. Monitored Natural Attenuation	
1.	**Monitoring Wells** (natural attenuation remedy) x Properly secured/locked x Functioning x Routinely sampled x Good condition x All required wells located ☐ Needs Maintenance ☐ N/A
X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). The remedy is a landfill cap with MNA. A leachate collection system and surface water drainage system collects water and the leachate water is pumped to MMSD Sanitary Sewer lines. Natural attenuation of groundwater is monitored via nested monitoring wells at the 4 corners of the landfill. Deed restrictions, site access controls (perimeter cyclone fence), and signs are in place. Gates are secured. Remedy is functioning effectively and is protective.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. The remedy is functioning effectively and RAOs are being met. O&M activities occur as needed and/or semi-annually.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. Currently, there are no early indicators of problems.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Currently, there is no opportunity for optimization.

Site Location

Superfund
U.S. Environmental Protection Agency

Fadrowski Drum Disposal
Milwaukee County, WI

WID980901227

State

County

Site

Figure 1

Produced by Julie Schilf
U.S. EPA Region 5 on July 7, 2008
Image Date: 2007

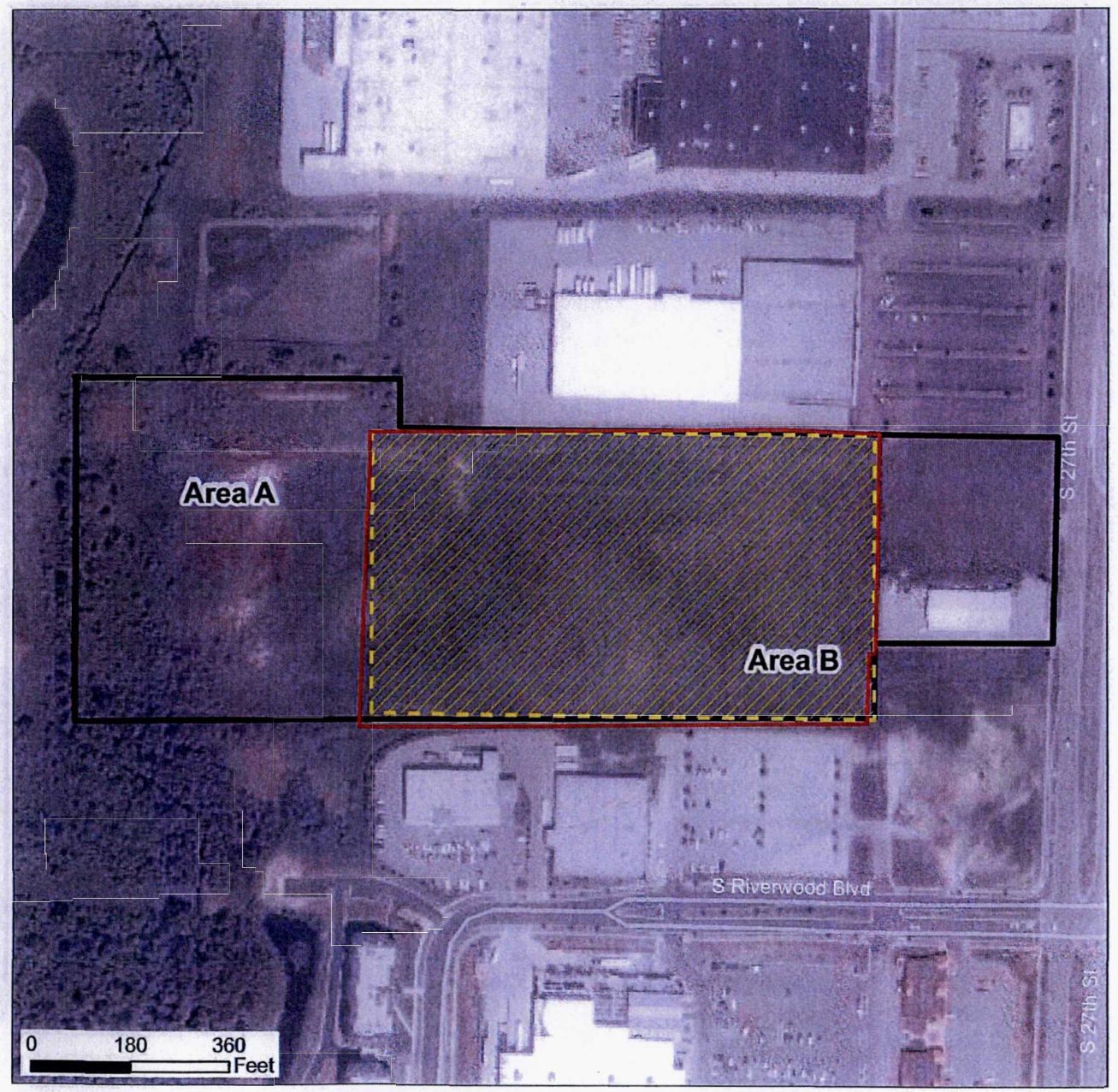
N

GEOS
Groundwater Evaluation and Optimization System

Fadrowski Drum Disposal
Milwaukee County, WI
WID980901227

Superfund
U.S. Environmental Protection Agency

Parcel Map



Legend

- Revised Legal Desc. of Deed Restriction - Approx. 11.4 acres
- Landfill Cap - Area B - Approx. 11 acres
- Fadrowski Drum Disposal Boundary - Area A - Approx. 22 acres

Figure 5

N

RPM: Sheila Sullivan

Producted by Julie Schilf
U.S. EPA Region 5 on 2/04/08
Image Date: 2007

GEOS